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~~(S)~~ NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.

THE NRO STAFF

November 9, 1970

MEMORANDUM FOR DR. NAKA *N* *Shanks.*
SUBJECT: UPWARD Mapping and Survey System

Recently, you requested some information on the UPWARD System. Following is a brief narrative summary of the program.

On August 28, 1963, an agreement was signed between NASA and DOD/CIA which provided the mechanism for NASA to use NRP technology in its lunar operations. The agreement established a ^{3.3(b)(1)} [REDACTED]

The agreement was signed by Mr. Gilpatrick for DOD and Mr. Webb for NASA.

Under the provisions of the agreement and at the request of NASA, the NRO began investigating the feasibility of using NRP hardware in the Apollo spacecraft. NRP technology was to be employed for acquiring mapping and surveillance data to support lunar landings. As a result, an UPWARD mapping and survey system was developed under the BYEMAN Security System with the NASA-NRO relationship maintained on a covert basis.

The original NASA requirement for an UPWARD camera system was to obtain lunar landing site certification and landmark mapping--requiring ^{3.3(b)(1)} [REDACTED] ground resolution--prior to a manned landing attempt. The system selected by

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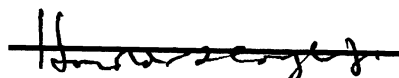
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the NRO to meet these requirements was the GAMBIT 77-inch strip camera, and a 1 1/2-inch focal length frame stellar index camera. These cameras were modified to make them compatible with the Apollo Block II Command Service Module.

During the UPWARD development period, NASA's Surveyor and Lunar Orbiter programs flew so successfully as to deliver enough data on the nature of the lunar surface to convince Apollo officials that the landing site certification problem had been solved. On June 1, 1967 Dr. Seamans, Deputy Administrator of NASA, requested the Apollo Applications Office to review the UPWARD program in the light of (1) the availability of data on lunar siting, (2) the possibility of a directed reduction in NASA's funds, and (3) the security problems associated with using UPWARD for some new purpose (for example, as an earth-sensing satellite for NASA). Based on the results of this review, NASA requested termination of the UPWARD program on August 30, 1967.


There are currently four UPWARD Systems in storage-- three at Eastman Kodak and one at Lockheed.

I hope that this information meets your needs.


HAROLD S. COYLE, JR.
Major, USAF

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